

IN THE CLAIMSRECEIVED  
CENTRAL FAX CENTER

AUG 22 2006

Please amend the claims as follows.

For the Examiner's convenience, a list of all claims is included below.

1. - 22. (Canceled)

BEST AVAILABLE COPY

23. (Currently Amended) A system comprising:

a substrate comprising an electrical device;

a metallization pad disposed over the substrate;

a ball-limiting metallurgy disposed over the metallization pad, the ball-limiting metallurgy comprising:

a metal adhesion first layer disposed above and on the metallization pad;

a ~~metal secondcopper~~ layer that includes copper disposed above and on the metal adhesion first layer;

a metal third layer that includes nickel-vanadium disposed above and on the ~~metal secondcopper~~ layer;

an electrically conductive bump disposed above and on the metal third layer;

wherein at least one of the ~~metal secondcopper~~ -layer and the metal third layer is compressively stressed; and

a flip-chip disposed over the ball-limiting metallurgy.

24. (Previously Presented) A system comprising:

a substrate comprising an electrical device;

a metallization pad disposed over the substrate;

a ball-limiting metallurgy disposed over the metallization pad, the ball-limiting metallurgy comprising:

a metal adhesion first layer disposed above and on the metallization pad;  
a metal second layer disposed above and on the metal adhesion first layer;  
a metal third layer disposed above and on the metal second layer;  
an electrically conductive bump disposed above and on the metal third layer;

wherein at least one of the metal second layer and the metal third layer comprises copper; and

a flip-chip disposed over the ball-limiting metallurgy, wherein the flip-chip comprises a solder having a composition of about Sn37Pb, and wherein the electrically conductive bump comprises a solder having a composition of about Sn97Pb.

25. (Original) The system according to claim 23, wherein the electrical device comprises a chip-scale package.

26. (Original) The system according to claim 23, wherein the flip-chip comprises a chip-scale package.

27. (Original) The system according to claim 23, wherein the electrical device comprises a chip-scale package and wherein the flip-chip comprises a chip-scale package.

28. (Original) The system according to claim 23, further comprising:

**BEST AVAILABLE COPY**

an intermetallic zone that substantially isolates the metal third layer from the electrically conductive bump.

29. (Previously Presented) The system according to claim 23, wherein the metal adhesion first layer includes a Ti composition, and wherein the Ti composition has a thickness in a range from about 500Å to about 4,000 Å .

30. (Previously Presented) The system according to claim 23, wherein the copper layer includes a NiV composition, and wherein the NiV composition has a thickness in a range from about 500Å to about 4,000Å, and wherein the metal third layer has a thickness in a range from about 1,000Å to about 5,000Å.

31. (Previously Presented) The system according to claim 23, wherein the metal third layer includes a NiV composition over the copper layer, wherein the NiV composition has a thickness in a range from about 1,000Å to about 5,000Å, and wherein the copper layer has a thickness in a range from about 1,000Å to about 5,000Å .

32. (Previously Presented) The system according to claim 23, wherein the metal third layer includes a copper stud over the copper layer, wherein the copper stud has a thickness in a range from about 5 micrometers to about 15 micrometers, and wherein the copper layer has a thickness in a range from about 1,000Å to about 5,000Å.

33. (Currently Amended) A system comprising:  
a substrate comprising an electrical device;  
a metallization pad disposed over the substrate;

a ball-limiting metallurgy disposed over the metallization pad, the ball-limiting metallurgy comprising:

a metal adhesion first layer disposed above and on the metallization pad;  
a ~~metal second~~copper layer of ~~copper~~ disposed above and on the metal adhesion first layer;  
a -copper stud disposed above and on the ~~metal second~~copper layer;  
an electrically conductive bump disposed above and on the copper stud; and  
a flip-chip disposed over the ball-limiting metallurgy.

34. (Previously Presented) The system according to claim 33, wherein the copper stud has a thickness in a range from about 5 micrometers to about 15 micrometers, and wherein the copper layer has a thickness in a range from about 1,000Å to about 5,000Å.